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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/833,506	04/07/97	WEBBER R	12842

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1806	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/833,506	Applicant(s) Webber
	Examiner Sheela J. Huff	Group Art Unit 1806

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-21 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☒ Notice to Comply w/ Seq. Rules

--- ***SEE OFFICE ACTION ON THE FOLLOWING PAGES*** ---

DETAILED ACTION

1. Claims 1-21 are pending.

Sequence Listing

2. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) set forth on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures.

Claim Rejections - 35 USC § 112

3. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In claim 1, the terminology "regions of human iNOS" renders the claim vague and indefinite. What does applicant mean by "regions"? How many amino acids are there in a "region"? A similar problem is found in claims 8 and 21.

b. Claim 1 is confusing because an immunoassay is used to detect an analyte not "a sample".

c. In claims 1-2, the "specific binding entity" in an immunoassay must be an antibody (ie it cannot be an oligonucleotide etc) because then the assay would not be an immunoassay. Similar problem is found in claims 8-9 and 21. How are the

oligonucleotide, polymers etc used in the immunoassay? Is applicant trying to clami several different types of assays, such as hybridization assays?

d. In claim 2, what does applicant mean by "polymers as artificial antibodies" and "phage display binding sites"? Polymers are polymers (organic compounds) not antibodies.

e. In claim 3, it is unconventional to refer to a part of protein as loci. Sequences is more conventional. The terminology "A-3," etc should be replaced by specific sequences. Similar problem is found in claim 10.

f. Claim 4 contains an improper Markush Group. A proper Markush Group is selected from the group **consisting** of. Similar problem is found in claim 11.

g. In claims 1, 6-8, 13-14 and 21 the terminology "revealing" is unconventional. The Examiner suggests using --detecting--.

h. In claim 8 it is not clear what applicant means by "mimics".

I. In claim 9 it is note clear what applicant means by "analogue".

j. In claim 21, what does applicant mean by "vehicle"?

k. Claims 5 and 12 are duplicates.

Double Patenting

4. The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified

or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8 and 13 of copending Application No. 08/634332. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to immunoassays. The only difference between the two is that the specific binding entity of the instant invention can be other things in addition to an anitibody.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-7, 12, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 94/23038 (Moncada et al) or Kobzik et al, Am. J. Respir. Cell Mol. Biol. vol. 9 p. 371 (1993) or Fujisawa et al, J. Neurochemistry vol. 64 p. 85 (1995)

The WO discloses the use of monoclonal antibodies directed against human iNOS in immunoassays to detect iNOS (pages 9-13) and hybridization assays (page 19). This reference discloses the sequence of human iNOS (Seq ID No. 2) and this sequence "comprises" many of the sequences found in figures 1 and 7-8.

Kobzik et al disclose the use of polyclonal antibodies that recognize both iNOS and eNOS in immunoassays (abstract).

Fujisawa et al disclose the detection of human iNOS using anti-rat-iNOS by western blotting (abst.).

It is inherent that the monoclonal antibodies bind to loci of claim 3.

8. Claims 1, 4-7, 12, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikeda Tojo Medical Journal vol. 65 p. 433 (6/95).

Ikeda discloses the use of an antibody to iNOS in an immunohistochemical assay to determine the distribution of iNOS in patients (humans) with ulcerative colitis (abstract).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

11. Claims 1-2, 4-7, 12, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda Tojo Medical Journal vol. 65 p. 433 (6/95) or

Kobzik et al, Am. J. Respir. Cell Mol. Biol. vol. 9 p. 371 (1993) or Fujisawa et al, J. Neurochemistry vol. 64 p. 85 (1995).

Ikeda discloses the use of an antibody to iNOS in an immunohistochemical assay to determine the distribution of iNOS in patients (humans) with ulcerative colitis (abstract). As indicated on page 5 of the translation the polyclonal antibody was prepared using 14 amino acids from the C-terminal side of iNOS (also see page 17-last full paragraph for the 14 amino acids being at the C-terminus) and that after the blood was drawn the antibodies were "refined into an IgG using an antibody refinement column).

Kobzik et al and Fujisawa et al have been discussed above.

The only difference between the instant invention and the reference is the use of monoclonal antibodies.

It is well known that monoclonal antibodies are more specific than polyclonal antibodies and that the use of monoclonals in assays gives greater sensitivity and specificity to an assay. Therefore, in view of the well known advantages of using monoclonals over polyclonals, it would have been obvious to one of ordinary skill in the art at the time of the invention to use monoclonal antibodies instead of polyclonal antibodies in the assay of the primary reference.

Conclusion

12. No claim is allowed.

13. Claims 8-11, 13-17 and 19-20 are not necessarily free of art. No art was applied because it ie not clear what applicant means by "mimics".

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Billiar et al US 5658565 and Billiar et al US 5468630 are cited to show that DNA sequences for human iNOS are known and the detection of such sequences is also known.

Chartrain et al J. Biol. Chem vol. 269 p. 6765 (1994) is cited for the same reason.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela J. Huff whose telephone number is (703) 305-7866. The examiner can normally be reached on Monday-Thursday from 6:30am to 3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lila Feisee, can be reached on (703)308-2731. The FAX phone number for this Group is (703)308-4242.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [**lila.feisee@uspto.gov**].

All Internet e-mail communications will be made of record in the application file. **PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122.** This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Sheela J. Huff

September 10, 1997

Sheela J. Huff
Patent Examiner
Group 1800